

Revolutionize Supply Chain Collaborations through Cloud Implementation

Dissa R. Chandra

Faculty of Industrial Technology
Bandung Institute of Technology
Bandung, Indonesia
dissa@mail.ti.itb.ac.id

Jos van Hillegersberg

Faculty of Behavioral, Management and Social Sciences
Department of Industrial Engineering and Business Information Systems
University of Twente
Enschede, The Netherlands
j.vanhillegersberg@utwente.nl

Abstract

Cloud technology offers a lot of benefits for organizations in the global supply chain network to achieve agile and sustainable Supply Chain Collaborations (SCCs). Characteristics of cloud computing (especially Software as a Service and Coordination as a Service) – i.e. on-demand self-service, broad network access, resource pooling, rapid elasticity, measured service – shift SCCs’ traditional business model. By facilitating transparency in data exchange, supporting the establishment of neutral orchestrators, and increasing the collaborations’ flexibility to choose members and service providers, cloud transforms the nature of the Inter-Organizational System (IOS) from a support system to an enabling IOS. This paper explains the revolution in SCCs’ business models and structures which are enabled by cloud implementation. Each element of SCCs’ Business Model Canvas – i.e. customers, key resources, partners, channels, revenue streams, key activities, and cost structures – and the influence of cloud to each element are described. Cloud-enabled SCCs’ structures are not limited to a hierarchical structure with a central orchestrator, but can also be a less hierarchical network with individualistic decision-making and shared governance. In the end, a set of alternatives elements and structures are presented. Some examples of SCCs are also identified based on the framework proposed. This framework could be used by academics and practitioners in transforming a traditional SCCs and establishing or evaluating a cloud-enabled SCCs’ business model.

Keywords

Cloud computing; supply chain; collaboration; IOS; business model

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Biographies

Dissa R. Chandra is a lecturer in Department of Industrial Engineering, Bandung Institute of Technology (ITB), Indonesia. She earned her Bachelor of Science degree in Industrial Engineering from ITB in 2010. In 2011, she received her Master of Science degree in Industrial Engineering and Management, majoring in Enterprise System Engineering, from ITB. Starting December 2012, she joined the Doctoral program at Department of Industrial Engineering and Business Information System, University of Twente, the Netherlands with a scholarship from

Indonesian Ministry of Education and Culture. Her research and projects are in the area of e-commerce, enterprise system, information system management, cloud computing, and inter-organizational system.

Jos van Hillegersberg is a full Professor in Business Information systems. He is head of the Department of Industrial Engineering and Business Information Systems at the University of Twente. His research deals with innovation of supply chains and business networks using ICT. He is contributing to several national and international projects on design of collaborative businesses and industrial networks applying ICT such as data analytics, architecture transformation, agent technology, and sensor data. He is chairman of the program committee of the Dutch research institute for advanced logistics. Before joining the University of Twente, he was on the faculty of the Rotterdam School of Management at the Erasmus University, working on component based software systems, IT management, global outsourcing and agent systems for supply chains. He also worked for several years in business. At AEGON he was component manager for the setup of an Internet Bank and at IBM he worked on artificial intelligence and expert systems.